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(54) **Photovoltaic battery module and junction box assembly therein**

Photovoltaisches Batteriemodul und Anschlusskastenordnung damit

Module de batterie photovoltaïque et ensemble de boîte de raccordement de celui-ci

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(56) References cited:
**WO-A2-2009/129405 WO-A2-2010/049886
DE-C1- 19 716 137 US-A1- 2004 007 375**

EP 2 408 017 B1

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Description

BACKGROUND OF THE INVENTION

1. Technical Field

[0001] The present invention relates to a photovoltaic battery module, and more particularly, to a photovoltaic battery module and junction box assembly therein

2. Description of Related Art

[0002] In recent years, non-renewable energy sources have been in short supply throughout the world, with many industries regarding solar cells as a priority. Current trends in energy savings are looking to the integration of solar cell with building materials and glass, such as the replacement of rooftop materials with solar cells, attaching solar cells to the external walls of buildings and to cover windows, skylights etc. Unfortunately, a single solar cell can generate only a small electric current, so multiple solar cells are often connected via a junction box in parallel or series so as to give out a relatively large voltage and current. Generally, the solar cell module comprising multiple solar cells and a junction box is provided for meeting the overall power-generating efficiency to the general usage.

[0003] For example, EP 2279529A2 discloses a solar panel junction box having a base portion and a cover which are stuck together. The solar cells and the junction boxes are often installed outdoors or are mounted on the roof, therefore the solar cells and the junction boxes are constantly exposed to severe outdoor conditions, and factors such as high temperature and temperature change can cause the junction boxes breakdown or damaged. Moreover, the attachment between the junction box and the solar cells is easily to loosen, thereby affecting the stability of conducting electricity. Furthermore, at the sites where the solar cells and junction boxes are attached, due to the weather and other factors, water is likely to permeate into the solar cells. This can make the solar cells breakdown. More particularly, since the volume of the junction box mounted on the window frames or the glass curtains is pretty small, the contact area between the junction box and the window frames or the glass curtains is small too. Therefore, the attachment between the junction box and the window frames or the glass curtains is not secure enough, which causes the junction box loosened from the window frames or the glass curtains, thereby making the junction box breakdown or damaged.

SUMMARY OF THE INVENTION

[0004] To overcome the shortcomings of the prior arts mentioned above, the present invention provides a junction box assembly. The junction box assembly comprises a junction box and a base plate, wherein the junction box

is assembled with the base plate. The junction box comprises an insulated housing and a pair of conductive terminals disposed in the insulated housing. The junction box and the base plate both include a longitudinal axis.

5 The bottom of the junction box disposes at least two first openings along the longitudinal axis. The junction box further comprises at least two water-resistant members, each of the water-resistant members, which is disposed at each of the first openings, has a second opening, wherein the area of each of the second openings is smaller than the area of each of the first openings.

10 [0005] The base plate is of a bar shape and disposes at least two third openings along the longitudinal axis. Each of the third openings each of the first openings of the junction box and each of the second openings of each of the water-resistant members are assembled with one another. The area of each of the third openings is smaller than the area of each of the first openings. A plurality of pairs of wing portions are aligned along both lateral sides of the longitudinal axis of the base plate. Each of the pair of wing portions is provided with a first preset distance there between. The first preset distance is shorter than the width of the junction box. The average width of the base plate is not greater than 50 millimeter.

20 [0006] Accordingly, the primary object of the present invention is to provide a junction box assembly comprising a junction box and a base plate, wherein the junction box assembly is formed via the assembly between the bottom of the junction box and the base plate. Specifically, the average width of the base plate of the junction box assembly is not greater than 50 millimeter (mm) and is accordingly suitable for a junction box of small volume. Hence, the contact area between the junction box assembly and the desired mounted regions, for example, the window frames or the glass curtains, is remarkably enhanced, thereby ensuring the junction box assembly being firmly mounted on the desired regions and being unlikely to loosen.

30 [0007] Another object of the present invention is to provide a junction box assembly, in which a plurality of pairs of wing portions are aligned along both lateral sides of the longitudinal axis of the base plate. Each of the pair of wing portions is provided with a first preset distance there between. Particularly, the first preset distance is shorter than the width of the junction box. Accordingly, the junction box, when being assembled with the base plate, the insulated housing of the junction box can be clamped tightly via each of the pair of wing portions of the base plate. Hence, the junction box can be securely assembled with the base plate, which is unlikely to loosen or be taken apart due to external impact or unintentional force.

40 [0008] Yet another object of the present invention is to provide a junction box assembly, in which a plurality of pairs of wing portions are aligned along both lateral sides of the longitudinal axis of the base plate. Each of the pair of wing portions is provided with a first preset distance there between. Moreover, each of the pair of wing portions

tions has a pair of hook structures at their distal ends. Each of the pair of hook structures is provided with a second preset distance there between. Particularly, the second preset distance is smaller than aforementioned first preset distance. Accordingly, each of the pair of hook structures of each of the pair of wing portions can retain the junction box at the position being above the junction box. Hence, the junction box of the present invention can be more securely assembled with the base plate, which is unlikely to loosen or be taken apart due to external impact or unintentional force.

[0009] Still another object of the present invention is to provide a junction box assembly, wherein the base plate of the junction box assembly has a recessed portion corresponding in the assembling position to the junction box of the junction box assembly. Each of the third openings of the base plate is formed on the recessed portion. Accordingly, the junction box, when being assembled with the base plate, can be retained firmly via the recessed portion of the base plate. The base plate of the present invention that has the pair of wing portions, the pair of hook structures and the recessed portion not only makes the junction box more securely assembled with the base plate, but also makes the attachment between the junction box assembly and the desired mounted regions thereon, for example, the window frames or the glass curtains, being unlikely to loosen or be taken apart due to external impact or unintentional force from different directions.

[0010] Still another object of the present invention is to provide a junction box assembly, in which the junction box of the junction box assembly further comprises at least two water-resistant members. Each of the water-resistant members, which is disposed at each of the first openings, respectively, has a second opening. Moreover, the base plate further comprises at least two flanges. Each of the third openings is formed centrally at each of the flanges. Accordingly, each of the flanges of the base plate penetrates into each of the second openings of each of the water-resistant members, thereby improving the junction box assembly of the present invention in better water-proof performance.

[0011] Moreover, the present invention provides a photovoltaic battery module comprising at least one photovoltaic battery and a junction box assembly, wherein the features of the junction box assembly are substantially the same as those above-mentioned in the present invention.

[0012] Accordingly, still another object of the present invention is to provide a photovoltaic battery module comprising a junction box and a base plate, wherein the junction box assembly is formed via the assembly between the bottom of the junction box and the base plate. Specifically, the average width of the base plate of the junction box assembly is not greater than 50 millimeter (mm) and is accordingly suitable for a junction box of small volume. Hence, the contact area between the junction box assembly and the desired mounted regions, for ex-

ample, the window frames or the glass curtains, is remarkably enhanced, thereby ensuring the junction box assembly being firmly mounted on the desired regions and being unlikely to loosen.

[0013] Still another object of the present invention is to provide a photovoltaic battery module, in which a plurality of pairs of wing portions are aligned along both lateral sides of the longitudinal axis of the base plate. Each of the pair of wing portions is provided with a first preset distance there between. Particularly, the first preset distance is shorter than the width of the junction box. Accordingly, the junction box, when being assembled with the base plate, the insulated housing of the junction box can be clamped tightly via each of the pair of wing portions of the base plate. Hence, the junction box can be securely assembled with the base plate, which is unlikely to loosen or be taken apart due to external impact or unintentional force.

[0014] Still another object of the present invention is to provide a photovoltaic battery module, in which a plurality of pairs of wing portions are aligned along both lateral sides of the longitudinal axis of the base plate. Each of the pair of wing portions is provided with a first preset distance there between. Moreover, each of the pair of wing portions has a pair of hook structures at their distal ends. Each of the pair of hook structures is provided with a second preset distance there between. Particularly, the second preset distance is smaller than aforementioned first preset distance. Accordingly, each of the pair of hook structures of each of the pair of wing portions can retain the junction box at the position being above the junction box. Hence, the junction box of the present invention can be more securely assembled with the base plate, which is unlikely to loosen or be taken apart due to external impact or unintentional force.

[0015] Still another object of the present invention is to provide a photovoltaic battery module, wherein the base plate of the junction box assembly has a recessed portion corresponding in the assembling position to the junction box of the junction box assembly. Each of the third openings of the base plate is formed on the recessed portion. Accordingly, the junction box, when being assembled with the base plate, can be retained firmly via the recessed portion of the base plate. The base plate of the present invention that has the pair of wing portions, the pair of hook structures and the recessed portion not only makes the junction box more securely assembled with the base plate, but also makes the attachment between the junction box assembly and the desired mounted regions thereon, for example, the window frames or the glass curtains, being unlikely to loosen or be taken apart due to external impact or unintentional force from different directions.

[0016] Still another object of the present invention is to provide a photovoltaic battery module, in which the junction box of the junction box assembly further comprises at least two water-resistant members. Each of the water-resistant members, which is disposed at each of

the first openings, respectively, has a second opening. Moreover, the base plate further comprises at least two flanges. Each of the third openings is formed centrally at each of the flanges. Accordingly, each of the flanges of the base plate penetrates into each of the second openings of each of the water-resistant members, thereby improving the junction box assembly of the present invention in better water-proof performance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The invention as well as a preferred mode of use, further objectives and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

FIG. 1 is an exploded view of a junction box assembly according to the first preferred embodiment of the present invention;

FIG. 2 is a front side view of a junction box assembly taken along the longitudinal axis according to the first preferred embodiment of the present invention; and

FIG. 3 is a top view of a photovoltaic battery module according to the second preferred embodiment of the present invention

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Some particular embodiments of the invention will be described in detail for purpose of illustration, and one of ordinary skill in the art can easily understand the advantages and efficacy of the present invention through the disclosure of the specification. It is to be understood that alternative embodiments may be possible for the implement and application of the present invention while numerous variations will be possible to the details disclosed in the specification on the strength of diverse concepts and applications without going outside the scope of the invention as disclosed in the claims.

[0019] Referring to FIG. 1, the first preferred embodiment of the present invention is a junction box assembly 100. This junction box assembly 100 comprises a junction box 1 and a base plate 2, wherein the junction box 1 is assembled with the base plate 2. Particularly, the base plate 2 is used for ensuring the junction box 1 being firmly mounted on the desired regions, for example, the window frames or the glass curtains. The junction box 1 comprises an insulated housing 10 and a pair of conductive terminals (not shown). The pair of conductive terminals (not shown) disposed in the insulated housing 10 allows the ribbon electrode of the photovoltaic battery (not shown in FIG. 1.) to be inserted thereto so as to conduct electricity. The junction box 1 has a longitudinal axis L. The bottom 14 of the junction box 1 disposes at least two first openings 11 along aforementioned longitudinal axis L. In addition, the junction box 1 further comprises at least two water-resistant members 3. Each of the water-resistant members 3, which is disposed at each of the first openings 11, respectively, has a second opening 12. Accordingly, an area of each of the second openings 12 is smaller than an area of each of the first openings 11.

[0020] The base plate 2 also has a longitudinal axis L which is substantially the same as that of the junction box 1. The base plate 2 is of a bar shape and disposes at least two third openings 21 along aforementioned longitudinal axis L. Each of the third openings 21 is corresponding in position to each of the first openings 11 of the junction box 1 and each of the second openings 12 of each of the water-resistant members 3. Besides, the area of each of the third openings 21 is smaller than the area of each of the first openings 11.

[0021] Referring to FIG. 2, which is a front side view of the junction box assembly 100 taken along the longitudinal axis L according to the first preferred embodiment of the present invention. A plurality of pairs of wing portions 20 are aligned along both lateral sides of the longitudinal axis L of the base plate 2. Each of the pair of wing portions 20 is provided with a first preset distance D1 there between. Particularly, the first preset distance D1 is shorter than a width W1 of the junction box 1. Accordingly, the junction box 1, when being assembled with the base plate 2, the insulated housing 10 of the junction box 1 can be clamped tightly via each of the pair of wing portions 20 of the base plate 2 due to the fact that the first preset distance D1 is shorter than a width W1 of the junction box 1. Hence, the junction box 1 of the present invention can be securely assembled with the base plate 2, which is unlikely to loosen or be taken apart due to external impact or unintentional force. Moreover, each of the pair of wing portions 20 has a pair of hook structures 201 at their distal ends. Each of the pair of hook structures 201 is provided with a second preset distance D2 there between. Particularly, the second preset distance D2 is smaller than aforementioned first preset distance D1. Accordingly, the present invention can tightly clamp the junction box 1 via each of the pair of wing portions 20 of the base plate 2. Besides, each of the pair of hook structures 201 of each of the pair of wing portions 20 can retain the junction box 1 at the position being above the junction box 1. Hence, the junction box 1 of the present invention can be more securely assembled with the base plate 2. Particularly, the numbers of the pairs of wing portions 20 disposed on the base plate 2 are preferably, but not limited to, four pairs of wing portions 20. Furthermore, the height of each of the pair of wing portions 20 can be adjusted depending on the circumstances and the products required. Specifically, each of the pair of wing portions 20 of the first preferred embodiment of the present invention is higher than the junction box 1, thereby allowing each of the pair of wing portions 20 can retain the insulated housing 10 of the junction box 1 at the position being above the junction box 1.

[0022] More particularly, since the volume of the traditional junction box mounted on the window frames or the glass curtains is pretty small, the contact area between the traditional junction box and the window frames or the glass curtains is small too. Therefore, the attachment between the traditional junction box and the window frames or the glass curtains is not secure enough, which causes the traditional junction box loosened from the window frames or the glass curtains, thereby making the traditional junction box breakdown or damaged. However, the junction box assembly 100 of the present invention comprises a junction box 1 and a base plate 2, wherein the junction box 1 is assembled with the base plate 2. The area of the base plate 2 is bigger than that of the junction box 1, thereby remarkably enhancing the contact area between the junction box 1 and the desired mounted regions thereon, for example, the window frames or the glass curtains. Accordingly, the present invention is suitable for a junction box of small volume. Specifically, an average width of the base plate 2 of the junction box assembly 100 is not greater than 50 millimeter (mm) and is preferably 30 millimeter (mm).

[0023] Still referring to FIG. 1, the base plate 2 has a recessed portion 23 corresponding in the assembling position to the junction box 1. Each of the third openings 21 of the base plate 2 is formed on the recessed portion 23. Accordingly, the junction box 1, when being assembled with the base plate 2, can be retained firmly via the recessed portion 23 of the base plate 2. The base plate 2 of the present invention that has the pair of wing portions 20, the pair of hook structures 201 and the recessed portion 23 not only makes the junction box 1 more securely assembled with the base plate 2, but also makes the attachment between the junction box assembly 100 and the desired mounted regions thereon, for example, the window frames or the glass curtains, being unlikely to loosen or be taken apart due to external impact or unintentional force from different directions.

[0024] Moreover, still referring to FIG. 1, the base plate 2 further comprises at least two flanges 22. Each of the third openings 21 is formed centrally at each of the flanges 22. Accordingly, each of the flanges 22 of the base plate 2 penetrates into each of the second openings 12 of each of the water-resistant members 3, thereby improving the junction box assembly 100 of the present invention in better water-proof performance.

[0025] Referring to FIG. 3, the second preferred embodiment of the present invention is a photovoltaic battery module 200. This photovoltaic battery module 200 comprises at least one photovoltaic battery 4 and a junction box assembly 100, wherein the features of the junction box assembly 100 are substantially the same as those described in the first preferred embodiment of the present invention. In this second preferred embodiment, via the base plate 2 of the junction box assembly 100, the contact area between the junction box assembly 100 and the desired mounted regions thereon, for example, the window frames or the glass curtains, is remarkably

enhanced. Hence, the attachment of the junction box assembly 100 between the desired mounted regions, for example, the window frames or the glass curtains, is unlikely to loosen or be taken apart, thereby making the junction box assembly 100 not being breakdown or damaged and improving photovoltaic battery module 200 in service life.

[0026] Although some particular embodiments of the invention have been described in detail for purposes of illustration, it will be understood by one of ordinary skill in the art that numerous variations will be possible to the disclosed embodiments without going outside the scope of the invention as disclosed in the claims.

Claims

1. A junction box assembly, comprising a junction box (1) and a base plate (2), wherein the junction box (1) is assembled with the base plate (2), the junction box (1) comprising an insulated housing (10) and a pair of conductive terminals disposed in the insulated housing (10), the junction box (1) and the base plate (2) both including a longitudinal axis (L), the junction box assembly (100) being **characterized in that:**

a bottom (14) of the junction box (1) disposes at least two first openings (11) along the longitudinal axis (L);

the junction box (1) further comprises at least two water-resistant members (3), each of the water-resistant members (3), which is disposed at each of the first openings (11), has a second opening (12), wherein an area of each of the second openings (12) is smaller than an area of each of the first openings (11); and

the base plate (2) is of a bar shape and disposes at least two third openings (21) along the longitudinal axis (L), each of the third openings (21) each of the first openings (11) of the junction box (1) and each of the second openings (12) of each of the water-resistant members (3) are assembled with one another, an area of each of the third openings (21) is smaller than an area of each of the first openings (11), a plurality of pairs of wing portions (20) are aligned along both lateral sides of the longitudinal axis (L) of the base plate (2), each of the pair of wing portions (20) is provided with a first preset distance (D1) there between, the first preset distance (D1) is shorter than a width (W1) of the junction box (1), an average width of the base plate (2) is not greater than 50 millimeter, wherein the insulated housing (10) of the junction box (1) is clamped via at least one pair of wing portions (20) of the base plate (2), wherein the base plate (2) has a recessed portion (23) corresponding in position to the junction box (1), and each of the third

openings (21) of the base plate (2) is formed on the recessed portion (23).

2. The junction box assembly of claim 1, wherein each of the pair of wing portions (20) has a pair of hook structures (201) at their distal ends. 5
3. The junction box assembly of claim 2, wherein each of the pair of hook structures (201) is provided with a second preset distance (D2) there between, the second preset distance (D2) being smaller than the first preset distance (D1). 10
4. The junction box assembly of claim 1, wherein the plurality of pairs of wing portions (20) is preferably four pairs of wing portions (20). 15
5. The junction box assembly of claim 1, wherein the base plate (2) further comprises at least two flanges (22), each of the third openings (21) being formed centrally at each of the flanges (22). 20
6. The junction box assembly of claim 5, wherein each of the flanges (22) penetrating into each of the second openings (12) of each of the water-resistant members (3). 25
7. The junction box assembly of claim 1, wherein each of the third openings (21) is formed on the recessed portion (23). 30
8. The junction box assembly of claim 1, wherein the average width of the base plate (2) is preferably 30 millimeter. 35
9. A photovoltaic battery module, comprising at least one photovoltaic battery (4) and a junction box assembly (100) according to at least one of claims 1 to 8. 40

Patentansprüche

1. Anschlussdosenbaugruppe, umfassend eine Anschlussdose (1) und eine Grundplatte (2), wobei die Anschlussdose (1) mit der Grundplatte (2) zusammengebaut ist, wobei die Anschlussdose (1) ein Isoliergehäuse (10) und ein Paar von leitfähigen Anschlussklemmen umfasst, die in dem Isoliergehäuse (10) angeordnet sind, wobei die Anschlussdose (1) und die Grundplatte (2) beide eine Längsachse (L) aufweisen, wobei die Anschlussdosenbaugruppe (100) **dadurch gekennzeichnet ist, dass** eine Unterseite (14) der Anschlussdose (1) mit wenigstens zwei ersten Öffnungen (11) entlang der Längsachse (L) versehen ist, die Anschlussdose (1) ferner wenigstens zwei wasserdichte Elemente (3) umfasst, wobei jedes der 45

wasserdichten Elemente (3), das an jeweils einer der ersten Öffnungen (11) angeordnet ist, eine zweite Öffnung (12) hat, wobei eine Fläche von jeder der zweiten Öffnungen (12) kleiner ist als eine Fläche von jeder der ersten Öffnungen (11), und dass die Grundplatte (2) stabförmig ist und wenigstens zwei dritte Öffnungen (21) entlang der Längsachse (L) aufweist, wobei jede der dritten Öffnungen (21) mit der jeweiligen der ersten Öffnungen (11) der Anschlussdose (1) und der jeweiligen der zweiten Öffnungen (12) von jeweils einem der wasserdichten Elemente (3) zusammengebaut ist, wobei eine Fläche von jeder der dritten Öffnungen (21) kleiner ist als eine Fläche von jeder der ersten Öffnungen (11), wobei eine Mehrzahl von Flügelabschnitten (20) paarweise entlang den beiden lateralen Seiten der Längsachse (L) der Grundplatte (2) ausgerichtet sind, wobei die paarweise angeordneten Flügelabschnitte (20) jeweils einen ersten vorbestimmten Abstand (D1) dazwischen aufweisen, wobei der erste vorbestimmte Abstand (D1) kürzer ist als eine Breite (W1) der Anschlussdose (1), wobei eine durchschnittliche Breite der Grundplatte (2) nicht größer als 50 Millimeter ist, wobei das Isoliergehäuse (10) der Anschlussdose (1) mittels wenigstens einem Paar von Flügelabschnitten (20) der Grundplatte (2) festgeklemmt ist, wobei die Grundplatte (2) einen vertieften Abschnitt (23) hat, der korrespondierend mit der Anschlussdose (1) positioniert ist, und wobei jede der dritten Öffnungen (21) der Grundplatte (2) an dem vertieften Abschnitt (23) ausgebildet ist.

2. Anschlussdosenbaugruppe nach Anspruch 1, bei welcher die paarweise angeordneten Flügelabschnitte (20) an ihren Distalenden jeweils ein Paar von Hakenstrukturen (201) aufweisen.
3. Anschlussdosenbaugruppe nach Anspruch 2, bei welcher jedes Paar von Hakenstrukturen (201) mit einem zweiten vorbestimmten Abstand (D2) dazwischen ausgebildet ist, wobei der zweite vorbestimmte Abstand (D2) kleiner ist als der erste vorbestimmte Abstand (D1).
4. Anschlussdosenbaugruppe nach Anspruch 1, bei welcher die mehreren paarweise angeordneten Flügelabschnitte (20) vorzugsweise vier Paare von Flügelabschnitten (20) sind.
5. Anschlussdosenbaugruppe nach Anspruch 1, bei welcher die Grundplatte (2) ferner wenigstens zwei Flansche (22) umfasst, wobei jede der dritten Öffnungen (21) mittig an einem der Flansche (22) ausgebildet ist.
6. Anschlussdosenbaugruppe nach Anspruch 5, bei welcher jeder der Flansche (22) jeweils in eine der zweiten Öffnungen (12) von einem der wasserdich-

ten Elemente (3) eindringt.

7. Anschlussdosenbaugruppe nach Anspruch 1, bei welcher jede der dritten Öffnungen (21) an dem vertieften Abschnitt (23) ausgebildet ist. 5
8. Anschlussdosenbaugruppe nach Anspruch 1, bei welcher die durchschnittliche Breite der Grundplatte (2) vorzugsweise 30 Millimeter beträgt. 10
9. Photovoltaikbatteriemodul, das wenigstens eine Photovoltaikbatterie (4) und eine Anschlussdosenbaugruppe (100) nach wenigstens einem der Ansprüche 1 bis 8 umfasst. 15

Revendications

1. Ensemble boîte de jonction, comprenant une boîte de jonction (1) et une plaque de base (2), dans lequel la boîte de jonction (1) est assemblée à la plaque de base (2), la boîte de jonction (1) comprenant un boîtier isolé (10) et une paire de bornes conductrices disposées dans le boîtier isolé (10), la boîte de jonction (1) et la plaque de base (2) comportant toutes deux un axe longitudinal (L), l'ensemble boîte de jonction (100) étant **caractérisé en ce que:** 20

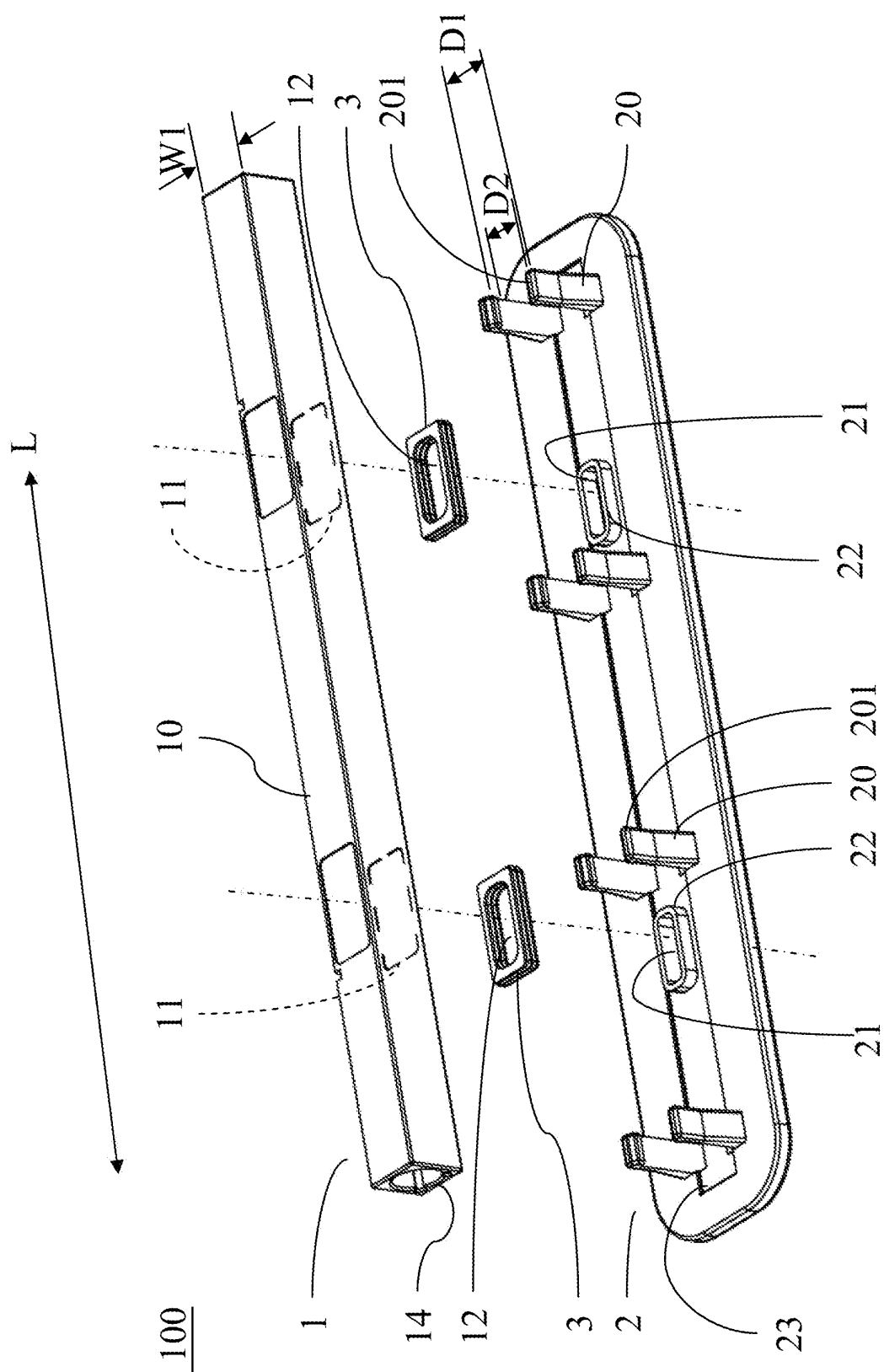
un fond (14) de la boîte de jonction (1) dispose au moins deux premières ouvertures (11) le long de l'axe longitudinal (L); 30

la boîte de jonction (1) comprend en outre au moins deux organes résistant à l'eau (3), chacun des organes résistant à l'eau (3), qui est disposé au niveau de chacune des premières ouvertures (11), a une deuxième ouverture (12), dans lequel une aire de chacune des deuxièmes ouvertures (12) est plus petite qu'une aire de chacune des premières ouvertures (11); et 35

la plaque de base (2) est en forme de barre et dispose au moins deux troisièmes ouvertures (21) le long de l'axe longitudinal (L), chacune des troisièmes ouvertures (21), chacune des premières ouvertures (11) de la boîte de jonction (1) et chacune des deuxièmes ouvertures (12) de chacun des organes résistant à l'eau (3) sont assemblées les unes aux autres, une aire de chacune des troisièmes ouvertures (21) est plus petite qu'une aire de chacune des premières ouvertures (11), une pluralité de paires de portions d'aillette (20) sont alignées le long des deux côtés latéraux de l'axe longitudinal (L) de la plaque de base (2), chacune de la paire de portions d'aillette (20) est prévue avec une première distance (D1) préétablie entre elles, la première distance préétablie (D1) est plus courte qu'une largeur (W1) de la boîte de jonction (1), une largeur moyenne de la plaque de base (2) n'est 50 55

pas supérieure à 50 millimètres, dans lequel le boîtier isolé (10) de la boîte de jonction (1) est serré via au moins une paire de portions d'aillette (20) de la plaque de base (2), dans lequel la plaque de base (2) a une portion en retrait (23) correspondant en position à la boîte de jonction (1), et chacune des troisièmes ouvertures (21) de la plaque de base (2) est formée sur la portion en retrait (23).

2. Ensemble boîte de jonction selon la revendication 1, dans lequel chacune de la paire de portions d'aillette (20) a une paire de structures de crochet (201) au niveau de leurs extrémités distales.
3. Ensemble boîte de jonction selon la revendication 2, dans lequel chacune de la paire de structures de crochet (201) est prévue avec une seconde distance préétablie (D2) entre elles, la seconde distance préétablie (D2) étant plus petite que la première distance préétablie (D1):
4. Ensemble boîte de jonction selon la revendication 1, dans lequel la pluralité de paires de portions d'aillette (20) compte de préférence quatre paires de portions d'aillette (20).
5. Ensemble boîte de jonction selon la revendication 1, dans lequel la plaque de base (2) comprend en outre au moins deux brides (22), chacune des troisièmes ouvertures (21) étant formée au centre de chacune des brides (22).
6. Ensemble boîte de jonction selon la revendication 5, dans lequel chacune des brides (22) pénètre dans chacune des deuxièmes ouvertures (12) de chacun des organes résistant à l'eau (3).
7. Ensemble boîte de jonction selon la revendication 1, dans lequel chacune des troisièmes ouvertures (21) est formée sur la portion en retrait (23).
8. Ensemble boîte de jonction selon la revendication 1, dans lequel la largeur moyenne de la plaque de base (2) est de préférence 30 millimètres.
9. Module de batterie photovoltaïque, comprenant au moins une batterie photovoltaïque (4) et un Ensemble boîte de jonction (100) selon au moins l'une des revendications 1 à 8.



Fi. 1

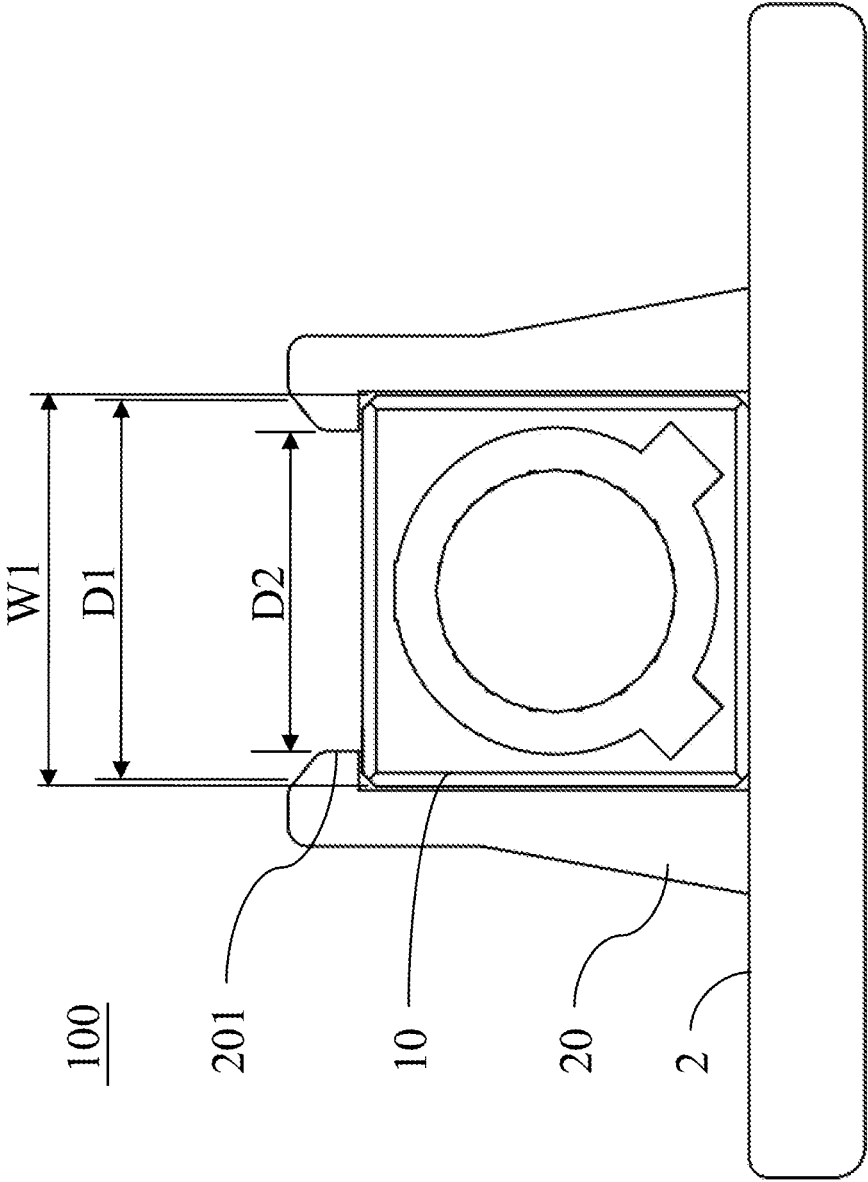


Fig.2

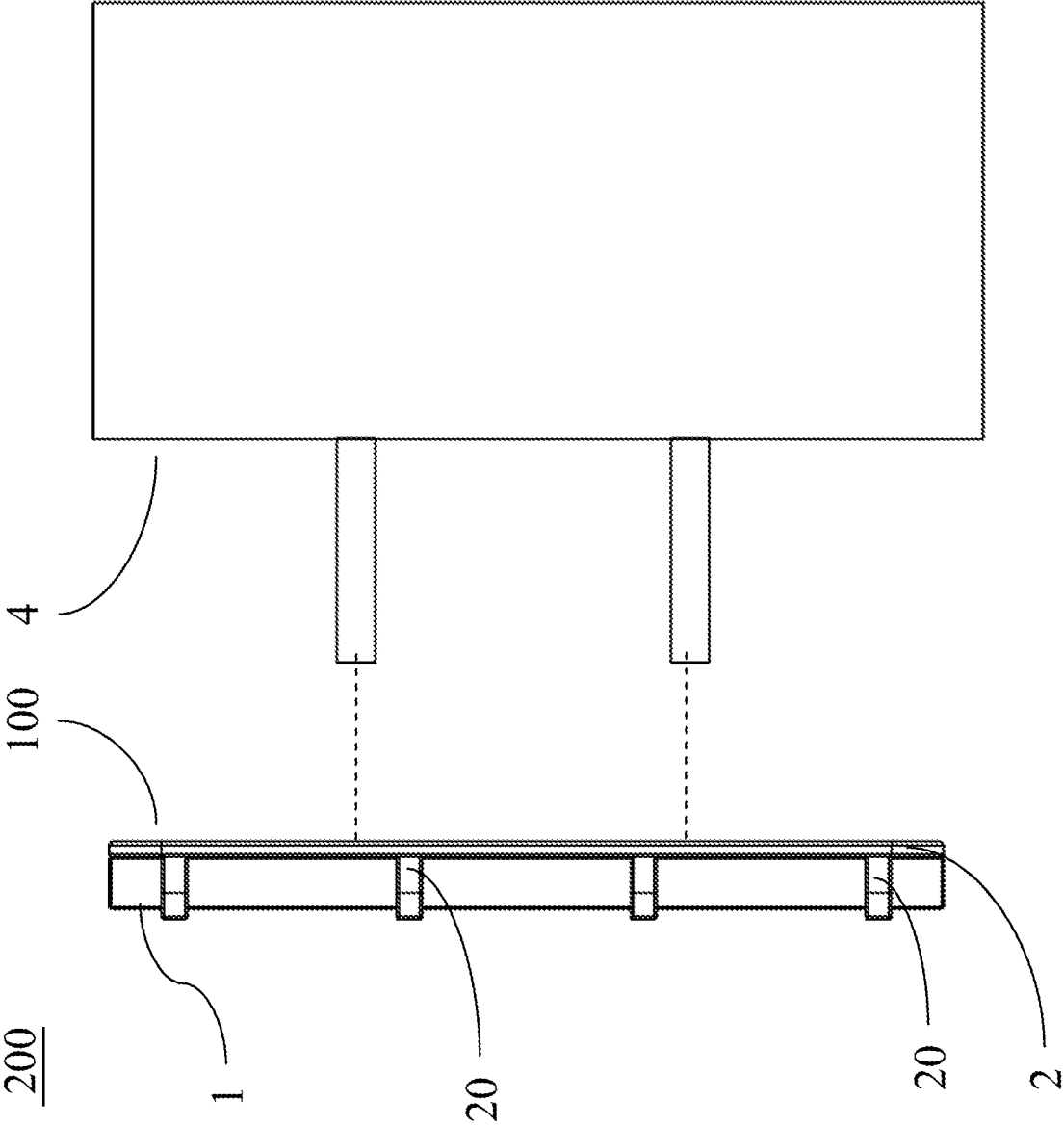


Fig.3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2279529 A2 [0003]